

Scents of Insects and their Meanings.

By A. W. BACOT, F.E.S.

Dr. Chapman's interesting note (*Entomologist's Record*, xvii., pp. 321-322) on "Scents of Insects and some thoughts about their possible meanings," reminds me of my failures when attempting to cross *Amphidasys strataria* and *A. betularia*. These, I think, suggest that there may be more openings for sexual selection among the assembling Heterocera than is usually thought to be the case.

My attempts to obtain fertile ova extended over three seasons, beginning with numerous attempts in which the moths were placed in large cages both indoors and out, but these never produced a single pairing, chiefly, I fancy, because the males did not have room for a sufficiently extended flight, but partly, at any rate, owing to the restlessness of the females. At the same time it was possible, under these same conditions, to get as many pairings between individuals of the same species as desired.

In the woods I was twice successful in obtaining pairings between wild males of *A. strataria* and females of *A. betularia* var. *doubledayaria*. On the occasion of the first success I saw the *strataria* enter the open compartment of the cage in which the female *A. betularia* was situated, and pairing took place almost immediately without any hesitation on the part of either moth. At the second successful attempt the female *A. doubledayaria* was resting on the outside of the cage in which the females of *A. strataria* were confined. I did not see the pairing take place but the female had not apparently shifted from her calling position.

Both these females had been out some eight or ten days before pairing took place, but the pairings were apparently quite normal in that the pairs in both instances were carried home by cycle a distance of ten to fifteen miles without disturbing the moths, and on the second occasion the pair was shifted from the cage into a box without their separating. In both instances, the nights were unfavourable ones for assembling, and very few males flew up. With one single exception the ova of both pairings were infertile. But the disappointing though favourable nights, on which the males flew up freely but would not or could not pair, afford the best evidence which bears on the males' possible selection of partners.

On one occasion, when the wind blew almost a gale and there was an abnormally high temperature (I think 60°F.) a single male dashed up, went into the cage, buzzed round for a few moments, and then retired not to return; an unusual circumstance possibly due to the strength of the wind. Upon a decidedly favourable night with a slight breeze, some eight or ten males flew up and several entered the cage, but, although they flew round and fluttered close to, even touching, the females of *betularia*, they made no attempts to pair during my observation, and no pairings took place. Other unsuccessful attempts were made, but my memory is not clear as to what happened, probably they were mostly occasions on which no moths assembled at all. My only attempt in 1905 was made on a calm, almost windless, and somewhat chilly, night, only one male flew up and his attempts to pair were most persistent, on three separate occasions I saw him attempt copulation, and each time the female *A. doubledayaria* avoided him.